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Preliminary Evaluation of the Probationary Driver Program in Ontario

– A Study of the First Year Driving Records of New Drivers

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Human Factors Assessment Section
Transportation Technology and Energy Branch

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Ontario Ministry of Transportation and Communications
H.F. Gilbert, Deputy Minister

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- R. Domoney -- Operational Policy Office
- L. Lonero -- Driver and Vehicle District Office
- R. Mackie -- Driver Licensing and Control Office

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EXECUTIVE SUMMARY

The Ontario Probationary Driver Program was developed by the Ministry of Transportation and Communications because of a concern about the high rates of accidents and offences among new drivers. This report provides a preliminary evaluation of that program.

The Probationary Driver Program, introduced on June 1, 1981, affects all new drivers. Probationary drivers must complete at least two one-year periods of suspension-free driving before their probationary status ends. There are three main differences between probationary status and non-probationary status:

- probationary drivers receive warning letters after the first pointable offence (versus after six points under the old system),
- there are no interviews (vs interviews at nine points), and
- suspensions are mandatory at six points (vs 15 points).

The objectives of the program are to reduce the high rate of accidents and offences for new drivers and to encourage the development of safe driving habits which will last beyond the probationary period.

The program evaluation is based on the first year driving record of new drivers. Probationary drivers licensed early in the program were contrasted with a comparable group of drivers licensed before the program was introduced. The evaluation emphasizes the records of drivers with no previous experience. Results are presented separately for those with motorcycle licences and for drivers previously licensed abroad.

The results of the evaluation indicate that, in their first year, probationary drivers have better records in terms of overall accidents and overall offences. This difference is also observed in separate examinations of injury-related accidents, property damage only accidents, pointable offences, and minor speeding offences. The evaluation also provides a rough assessment of the magnitude of these first-year differences. Probationary drivers were involved in 100 fewer accidents per 10 000 drivers (9% lower) and committed 430 fewer offences per 10 000 drivers (14% lower). The results for young males (under 20) are of special interest because of their relatively high accident and offence rates. There is some evidence of better records under probation for this group but the differences are not as large as for the overall comparison (7% fewer accidents and 11% fewer offences).

Although the overall record of probationary drivers is better, there is little evidence of differences in accident or offence rates for the following groups:

- young females,
- drivers with motorcycle licences, and
- drivers previously licensed abroad.

This is an evaluation of a two-year program based on one-year driving records. It should not be assumed that similar differences will be observed in the second or subsequent years. It is also not clear how the program may affect the attitudes and behaviours of new drivers. Further research is necessary before conclusions are drawn about the long-term effectiveness of the program and to support decisions about the program's future.

1/ INTRODUCTION

1.1/ Program Objectives

The probationary driver program was introduced in order to:

a) reduce the disproportionately high accident and conviction rates of new drivers and

b) encourage safe driving habits in initial years of experience which, it is hoped, will carry over to subsequent years.

1.2/ Purpose of Study

This is a preliminary record study comparing the driving records of probationary drivers with those of an appropriate comparison group. It is intended to assess whether the program is associated with differences in rates of conviction and accident involvement in the first year of driving.

2/ BACKGROUND INFORMATION

2.1/ The Probationary Driver Program

In June, 1981, the probationary driver program was implemented in Ontario. A number of reports have been generated describing and documenting the probationary driver program and the related licensing systems in Ontario [1, 2, 3]. A brief description of the program is reproduced below based on the information leaflet which is distributed to new drivers when receiving their licence.

Probationary Driver System

Probationary status will apply to all newly licensed drivers, regardless of age, and any person currently holding a Class "L" or "R" driver's licence. They will keep their probationary status for a minimum of two years from the date they pass their road test.

Exemptions

a) Any person who held a valid Ontario driver's licence other than Class "L" or "R" at any time within the previous three years.

b) Any person who held a valid licence for at least 24 months within the previous three years in:
   i) another province or territory of Canada
   ii) a state of the United States of America
   iii) the Canadian Forces, Europe
   iv) any combination of the above.

Should a probationary driver receive a total of six (6) demerit points during the probationary period, his/her licence will be suspended for 30 days. Every probationary driver must complete two 12-month probationary periods without licence suspensions other than medical and financial suspensions. In the latter cases, the probationary period continues after reinstatement.

In addition, upon the effective date of a licence suspension for a six-point suspension, a probationary driver's points will be reduced to zero. On the first occasion that a probationary driver accumulates demerit points within a probationary period he/she will receive notice from the

Ministry indicating the number of demerit points on his/her record and also, a reminder of the consequences of reaching six demerit points. (Appendix A is an extract from Reference 2 illustrating the driver control system for probationary and non-probationary drivers.)

2.2/ Report Organization

The detailed study design is discussed in Section 3 while the data analysis is described in Section 4. Section 5 is a general discussion of some possible explanations for program effects and areas of research considerations. Key findings are summarized in Section 6.

3/ STUDY DESIGN

The ideal study design would consist of random assignment of newly licensed drivers into "probationary" and "non-probationary" groups. Driving records would then be examined and compared after a specified period of time. Assessment of the impact of the program would thus be based on comparable groups driving for the same length of time under similar environmental conditions. However, this "ideal design" would require exempting a sample of the new drivers from the program. This is not practical as the public may consider it to be discriminatory. Hence, an alternative study design had to be considered.

The following subsections describe:

- Alternative Group Design (Section 3.1)
- Membership in the Group (Section 3.2)
- Record Length (Section 3.3)
- Information Requirements and Extraction (Section 3.4)

3.1/ Alternative Group Design

Three alternative comparisons were considered:

- "one-year cohorts" (drivers licensed during the year before and after program implementation);
- "one-month cohorts" (drivers licensed during the month before and after program implementation); and
- "four-month cohorts" (drivers licensed during the four months before and after program implementation.)

The one-year cohorts design was considered undesirable because it compares groups exposed to different driving environments (economic factors, weather, enforcement, etc.) and it is difficult to control and adjust for those factors. In addition, this study design does not permit a timely preliminary assessment of the program.

The main concern about the one-month cohorts design is the possibility that awareness of an impending change in driver licensing regulations may have an effect on the "kind" of drivers who attempted to receive their driver's licence in May. It is conceivable that potentially "bad"

drivers, in anticipation of more rigorous licensing requirements, may have attempted to "get in under the wire". If this effect were substantial, the accident and offence rate of May drivers would be artificially raised, and probationary drivers (those licensed in June), by comparison, would appear to be better drivers than they actually are. The program would be given undue credit for reducing accident and offence rates.

The four-month cohort design may dilute some of the "under-the-wire" effect, but it is more likely to be limited by differences in driving environment. The major concern is that drivers successfully passing their driver test in the winter and early spring are exposed to a different driving environment from those who are licensed in summer months. For example, drivers first licensed in February and March have their initial driving exposure during the most difficult environmental conditions (winter) whereas drivers licensed in June or July have a number of months of driving experience before they have to drive under more severe conditions. Differences in the economic environment could also have an especially strong impact on new drivers.

Another difference between the one-month and four-month cohort designs is the extent to which these drivers are representative of all new drivers. Drivers licensed during the period from February through September are more likely to be representative than drivers licensed in May and June.

An additional limitation of the four-month cohort comparison should be noted -- the offence records of drivers licensed from June through September may not be completely accurate. If there are substantial delays before conviction, this would artificially improve the offence record of probationary drivers in the four-month cohort. If this limitation has any effect on the one-month comparison, it would probably be very small.

Based on the above discussion, currently available information does not allow for a clear choice between the one-month and four-month cohort comparisons. Therefore, a data file was specified to accommodate both one-month and four-month designs. In Section 4.1, a preliminary analysis of these data is used to clarify the differences between these two study designs.

3.2/ Membership in the Groups

In general, this study includes drivers who received an "original" licence and did not belong to a group that would have exempted them from probationary status. Exempted groups are described in Section 2.

It is likely that the demographic profile and driver records of "new" drivers having previous experience or previous licence may be quite different relative to "new" drivers with no previous licence or experience. Therefore, the main component of the analysis focused on drivers with no previous experience. It should be noted that for the "experienced" group there were two sub-categories, namely "licensed abroad" and "with previous North American experience". The latter group of probationary drivers was reported separately for completeness; information about previous North American experience was not sufficiently detailed before the program was implemented to identify a comparable group of non-probationary drivers.

An additional examination of driver records was undertaken for drivers who received a motorcycle licence at the time of licensing or during the first six months after they received their licence.

3.3/ Record Length

Records were examined for a one-year period from the date of the licence, e.g., May 10, 1981, to May 10, 1982. Information on the first year of driving experience is critical for monitoring of the program. A one-year period allows for an early assessment of the impact of the program and more importantly, the first year of driving can be considered one of the most important years as it is during this first year when the driver is most inexperienced and begins to develop either good or bad driving behaviour/habits. It is important to note that although this study focuses on the first-year experience of drivers, subsequent years of driving experience should be examined in order to assess the intermediate and long-term differences associated with the program.

3.4/ Record Information Requirements and Extraction

The Ministry maintains driving record information on all drivers licensed in the province. This information ranges from detailed licensing history to detailed accident, offence and suspension records. This base of information was used in order to develop a data file for comparing pre and post driver groups.

As previously discussed, the data should include driving information for the one-month and four-month cohorts. Hence, a request was made for the one-year driving records of new, probationary drivers (post-group) licensed during the first four months of the program (June, July, August, September, 1981) and new drivers licensed during the four-month period preceding program implementation (February, March, April, May, 1981). All new drivers (according to previous specifications) were to be included in this data base. A rectangular computer tape file of a fixed record length, in character mode was created. The file contained information on each driver's demographics and characteristics, accidents, offences and suspensions (see Appendix B for the specifications). The following subsections describe the requested information and the extraction process.

3.4.1/ Driver Demographics

The created data file contains information on driver licence number, driver group (pre-group, post-group), licence class (G,M,GM), date of licence, driver age and sex, and licence history. Driver's licence number was included as a link to name and address information which would be used if contact with drivers was eventually considered necessary. It should be noted that individual records were not identified and only aggregated statistics were generated in the analysis.

3.4.2/ Accident Data

The data file also contained accident information. This included details on the number of fatal injury, non-fatal injury, property damage and non-reportable accidents. Accident information concerning apparent driver

action, as reported on the motor vehicle accident report (completed by police) were also included.

3.4.3/ Offence Data

Detailed offence information was also incorporated into the data file. The total number of offences included those resulting in demerit points, offences under the Criminal Code of Canada (C.C.C.) and other Highway Traffic Act (H.T.A.) offences. This latter category includes minor speeding offences, vehicle-equipment offences and administrative offences (e.g., those related to drivers' licences or the registration of vehicles). Detailed totals were included for each type of pointable offence and C.C.C. offences. The file also contains information on the total number of demerit points accumulated in one year.

3.4.4/ Suspension Data

For the purpose of analysis, suspensions are classified into four main categories -- demerit point suspensions, Criminal Code convictions, motor vehicle accident claim/fine (MVAC/Fine), and other suspensions. Demerit point suspensions under the probationary program have been discussed in Section 2.1. Drivers licensed before June 1, 1981, and drivers who are no longer on probation are suspended automatically if they accumulate 15 or more points. They may also be suspended as a result of the interview that occurs after nine points are accumulated. Suspensions resulting from Criminal Code convictions are imposed for serious offences such as impaired driving and failure to remain at the scene of an accident. MVAC/Fine suspensions result from a failure to pay a motor vehicle accident claim, a judgement, or a traffic fine. All other suspensions are relatively rare and have been combined in a miscellaneous category.

3.4.5/ Extraction

The data base used in this study was created by the Driver Systems group of the Computer Systems Branch according to the specifications as outlined in the preceding paragraphs. The record information was extracted from a Ministry file, called the Unload File, which was created from the Driver Master File in December, 1982. Detailed system programming was developed by the programmers to select the drivers and

extract the required information. After proper testing and quality checking, a computer tape with all the specified information was created. Data analysis was done by using a computer statistical package (SPSS, see Reference 10 for detailed description).

4/ DATA ANALYSIS

A number of analyses have been done and are presented in the following subsections:

4.1/ Comparison of One-month and Four-month cohorts
4.2/ Comparison of Pre-groups and Post-groups
4.3/ Analysis of the Age and Sex Subgroups
4.4/ Analysis of Drivers with Motorcycle Licence
4.5/ Analysis of Drivers with Previous Driving Experience/Licence.

Statistical significance noted in this section refers to a significance level of .05, two-tailed z-test. A more detailed discussion of statistical tests is included in Appendix F but, in general, this means that these differences would have occurred by chance one time in twenty.

4.1/ Comparison of One-Month and Four-Month Cohorts

Table 1 is a "profile" of several key variables of the two alternative samples previously described, i.e., the four-month cohort and one-month cohort. The information presented relates to drivers with no previous experience.

As shown in Table 1, the differences in average age and sex distribution between the pre- and post-groups are smaller in the one-month cohort as compared to the four-month cohort. There is a similar distribution of drivers according to licence class in the two cohorts. With respect to accident rates, the rate for the post-groups in both cohorts is similar; however, the accident rate for the pre-group is relatively higher for the four-month cohort than the one-month cohort. The comparison of accident rates between pre- and post-groups reveals a difference of 245 accidents per 10 000 drivers for the four-month cohorts and a 101 accident difference in the one-month cohorts.

With respect to offence rates, the rate for the pre-group is considerably higher in the four-month cohort than in the one-month cohort, and somewhat lower for the post-group. The comparison of offence rates between pre- and post-groups reveals a difference of 754 offences for the four-month cohorts and a difference of 431 for the one-month cohorts.

Although there may be a number of plausible explanations for the differences between the cohorts with respect to accidents and offenses, it seems likely that environmental differences are a major contributing factor. For example, the four-month cohort includes drivers first licensed in February and March. These relatively inexperienced drivers have their initial driving exposure during the most difficult environmental conditions (winter), whereas drivers first licensed in May have a number of months of driving experience before they have to drive in winter conditions.

An additional bias may be introduced into drivers' offence records because the courts require extra time to convict a driver in some cases. The records of probationary drivers in the four-month cohort are most likely to be affected by this delay; some members of this group were licensed in September and the results of the study are based on records as of December of the subsequent year. The effect of this bias would be to artificially improve the offence record of probationary drivers.

Differences in demographics, driving environment, and record accuracy are minimized in the one-month cohort design, but there remains a concern about the possibility of an "under-the-wire" effect. This concern was assessed by examining general licensing statistics for the past three years and demographic information from the sample. If there was an extensive rush by "bad" drivers to be licensed in May, this phenomenon should be evident in the proportion of new drivers licensed in May, 1981, compared to the same month in other years. There is no evidence to suggest that such a rush occurred. If a disproportionate number of "bad" drivers were newly licensed in May, this might also be reflected in a greater proportion of young or male drivers. As Table 1 shows, however, the proportion of males is lower among drivers licensed in May than for drivers licensed during the period from February to May. The average age of the two cohorts is virtually identical. See Appendix C for a more comprehensive discussion of the comparability of the one-month cohort groups including possible differences in driver education.

One additional question about May and June cohorts is whether they are representative of all new drivers. This question cannot be completely answered with the data that were extracted, but comparisons with four-

month cohorts are useful in this regard because the latter group was licensed during eight different months. The specific basis for questions about representativeness focus on age, sex, and driver education because these variables are known to be related to driving record. The average age of drivers in the four-month cohorts is 20.2 years compared to 19.9 for the May and June cohorts. The proportion of males in the four-month cohorts is 48.8% compared to 48.7% for the May-June cohorts. These similarities should increase the confidence that the May-June cohorts are representative of new drivers in terms of age and sex. Additional data would be required to determine if May-June drivers are representative in terms of their levels and types of driver education. This concern is based on the possibility that the program could result in larger differences between pre-probation and post-probation drivers when both groups have higher levels of driver education.

There may also be less specific concerns about the representativeness of May and June drivers. In this case, confidence in the May-June results can be increased by showing that similar patterns of results are observed when the four-month cohorts are compared. Despite the possible biases in the latter design, these groups are likely to be more representative of new drivers in general.

Based on the above discussion, the results from the one-month cohort will be emphasized. However, results from the four-month cohorts are presented to supplement the discussion of accident and offence rates. Additional information on the four-month cohorts is included in Appendix G.

4.2/ Comparison of Pre-Groups and Post-Groups

Comparisons were made between the pre- and post-groups of "new" drivers (without previous driving licences) and are presented under five major headings (A) Demographics, (B) Suspensions, (C) Offences, (D) Demerit Points, and (E) Accidents. These comparisons are useful for assessing the overall effectiveness of the program; the impact of the program on four major age/sex groups is discussed in Section 4.3.

4.2.1/ Demographics

From Table 1, it is evident that both the May and June groups had a slightly lower proportion of male drivers than female drivers. Further, the May groups had a higher proportion of male drivers than the June groups (49.8% vs 47.9%). It should be pointed out that although the difference in sex ratio between the two groups is statistically significant, in absolute terms the difference is slight and unlikely to distort the overall findings. Appendix D demonstrates that if this difference in sex rates is adjusted for, the offence and accident rates of the June group are still substantially lower than those of the May group. The impact of the program for four major age and sex groups is examined more closely in subsequent sections. Table 2 presents the age distribution for the pre- and post-groups. As shown, both groups have approximately the same average age, 19.9 years. About 72% of the "new" drivers in the pre- and post-groups are under the age of 20 and the age distributions are quite similar.

4.2.2/ Suspensions

Most drivers in the study have never been suspended. Over 98% (actual 98.5%) of the drivers in the May group and 97.1% of the drivers in the June group have never been suspended. Of the drivers who have been suspended, most have received only one suspension. Only 0.1% of the May drivers and 0.2% of the June drivers have had more than one suspension.

As shown in Table 3, there is a significantly higher suspension rate for drivers in the June group. In particular, the June group has a much higher rate of demerit point suspensions. Although this result is expected, the size of the difference is relevant for further analyses (see Section 5.1.3). The finding is not surprising since probationary drivers are suspended after accumulating six or more demerit points. In the previous system, applicable for the May group, a driver is suspended after accumulating 15 or more demerit points. Table 3 also indicates that the average number of days suspended for all drivers is higher for the June group and the average length of each suspension is lower for the June group. Once again, this pattern is related to the greater number of demerit point suspensions in the June group. The greater number of

demerit point suspensions contributes to an overall higher number of days suspended per driver, whereas the relatively shorter length of demerit point suspension period (i.e., 30 days) tends to reduce the average length of each suspension. Table 3 also indicates that probationary drivers are less likely to be suspended for failure to pay motor vehicle accident claims or fines. This probably reflects the lower rate of accidents and offences leading to such claims and fines among probationary drivers.

The demerit point suspension rates in Table 3 are lower than would be expected from an examination of the demerit point information in Table 5; this is due to the difference between offence dates and suspension dates. Demerit points were included in the study of first year records if the offence occurred within that year, (and the conviction occurred before December 1982 when the record data was extracted). Suspensions were only included in the study of first year records if the relevant conviction and resulting suspension occurred in that year.

Demerit points were calculated according to the offence date because the total number of demerit points is being used as a measure of driving behaviour that is sensitive to the seriousness of the offences committed during the first year. Suspensions were calculated according to suspension date because the driver does not experience the suspension until it is actually imposed.

4.2.3/ Offence Records

Most drivers in the study have never been convicted of an offence. Slightly more than 79% of the May drivers and 81.2% of the June drivers have never been convicted of an offence. However, about 6.4% of the May drivers and 5.3% of the June drivers had two or more offences.

Table 4A is a profile of several types of offences. As shown in the table, the June group has a significantly lower rate of offences -- in particular, a lower rate of pointable and minor speeding offences. The offence rate is also significantly lower among probationary drivers in the four-month cohort comparison (see Appendix G, Table G1). Although

the differences between May and June drivers for administrative, vehicle/equipment, or Criminal Code of Canada offences were not significant, there was an apparent trend for a lower rate for these offences in the June group. Rates for specific offences are presented in Tables 4B and 4C. The data should be interpreted with caution due to insufficient number of occurrences. However, for some offences where large numbers of offences have occurred such as speeding 30-49 km/h and speeding 16-29 km/h, careless driving, and failing to obey a stop or traffic signal, a significantly lower number of offences was observed for the June group.

4.2.4/ Demerit Points

Eighty-six percent of drivers in the May group and 87.4% of drivers in the June group have never received a demerit point. As shown in Table 5, the June group has a significantly lower average number of demerit points per driver than the May group. This reduction is not surprising given the significantly lower number of pointable offences for the June group, as seen in Table 4A. The average number of demerit points is also significantly lower among probationary drivers in the four-month cohort comparison (see Appendix G, Table G1).

4.2.5/ Accident Records

The majority of drivers in both the May and June groups have had no accidents (89.9% and 90.8%, respectively). Of those drivers who did have accidents, most of them had only one accident. Only 0.8% of drivers in the May group and 0.7% of drivers in the June group had two or more accidents.

In Table 6 it is shown that the June group had a significantly lower accident rate than the May group. A significantly lower accident rate was observed for both non-fatal and property damage accidents. As shown in the table, fatal accidents and non-reportable accidents appear relatively rarely in drivers records and differences between groups were not significant. The accident rate is also significantly lower among probationary drivers in the four-month cohort comparison (see Table G1).

One might speculate that the probationary program might have a greater effect on bad drivers, i.e., drivers involved in accidents who were driving improperly. Accidents were classified as proper or improper according to the apparent driver action as recorded on the motor vehicle accident reports. As shown in Table 6, there is a significant difference in accident rates between May and June drivers when the accident involved improper action. Although this difference is not significant for accidents with no improper action, the difference is in the same direction and of similar relative magnitude.

4.3/ An Assessment of the Magnitude of Differences Associated with the Program

Sections 4.2.3 and 4.2.5 discuss the reliability of the observed differences in offences and accidents. The results of the evaluation can also be used to estimate the magnitude of these differences. The difference in offence rates is 431 per 10 000 drivers (probationary drivers have 13.8% fewer offences, see Table 4A). Similarly, the accident rate for probationary drivers is lower by 101 per 10 000 drivers (9.2% less, see Table 6).

4.4/ Analysis of Age and Sex Subgroups

The difference between male and female drivers are well documented (see References 6, 7). The accident and offence rates of males and females are sufficiently different to justify separate analysis of their response to the program. Young drivers are also a distinctive group. A recent review of the literature on young drivers [8] argues that the driving behaviour of young drivers is sufficiently distinctive to justify giving them separate attention. Based on definitions used in the literature, that review defined the young driver as one who is 19 years old or younger. That definition has been adopted for this study. Drivers 20 or over are referred to as "older" drivers. Table 7 shows the sample size of four age/sex subgroups licensed in May and June, 1981; drivers with previous experience are not included. Further division of older drivers is limited by the relatively small number of new licences issued to males over 19 years of age.

The analyses in this section rely on data from the one-month cohort comparison. The pattern of results for the four major age/sex groups are generally consistent with the overall results, but there are some variations among subgroups. In particular, it should be noted that young male drivers on probation do not have significantly fewer accidents, and that young female drivers on probation do not have significantly fewer offences or fewer accidents. A similar pattern of results is observed for the four-month cohort comparison (see Table G1), but the differences are more likely to be significant (see Section 4.1).

4.4.1/ Suspension Record by Age and Sex

As previously indicated, there is a significantly higher suspension rate in the June group overall. As shown in Table 8, significantly higher suspension rates are observed for young male, young female and older male categories of drivers. A similar pattern is also evident for the older female group but it is not statistically significant. It should be noted that the overall suspension rate for females as compared to males is small in relative terms.

4.4.2/ Offence Record by Age and Sex

June drivers have a significantly lower offence rate than May drivers. As shown in Table 9A, young male, older male and older female drivers show significantly lower offence rates. Although the difference for the young female group is not statistically significant, the pattern of lower offence rate was still evident. Again, it should be noted that females have a lower offence rate than males. Table 9B shows that for pointable offences, a significantly lower offence rate is noted for young male and older female drivers.

4.4.3/ Demerit Points by Age and Sex

A comparison of the May and June drivers reveals a significantly lower average number of demerit point for probationary drivers. A more detailed examination reveals a significantly lower average number of demerit point for young male, older male and older female categories of drivers (see Table 10). This pattern is the same as that observed for

pointable offences and is consistent with the relationship between demerit points and pointable offences.

4.4.4/ Accidents by Age and Sex

There is a significantly lower accident rate for the June drivers. With respect to various age and sex categories, a significantly lower accident rate is observed for older male and older female drivers (see Table 11). A similar pattern of results is also evident for young males, but it is not statistically significant; there is no evidence that young females on probation have fewer accidents (see Table 11). It should be reiterated that female drivers on the whole have relatively lower accident rates than male drivers.

4.5/ Analysis of Drivers with Motorcycle Licences

Table 12 profiles May and June class "M" drivers. These drivers are defined as those who received a motorcycle licence at the time of licensing or within the first six months of their original licence. The group includes drivers with or without a class "G" licence but excludes drivers with previous experience or licence.

The age and sex composition of the two groups is quite similar but differs from new drivers in general by having proportionately more young drivers and more males. The age and sex differences combined with the differences associated with driving a motorcycle justify a separate examination of the group's reaction to the program. Unfortunately, the number of drivers is not sufficient to detect small differences in offence or accident rates. The pattern of differences for new "M" class drivers is similar to that for new drivers in general but neither the difference in offence rate nor the difference in accident rate is statistically significant.

4.6/ Analysis of Drivers with Previous Experience

As indicated in the earlier description of the program, drivers with a previous licence history may be exempted from probationary status (see Section 2.1 for details).

Drivers licensed abroad can be identified within the May and the June groups; these two groups are profiled in Table 13. However, before the probationary licence program was introduced, there was no reason to record the full details of previous North American experience (e.g., if it was valid for 24 months within the last three years). As a result, there is no pre-probation control group for such probationary drivers. Therefore, no conclusions can be drawn about their response to the program; such drivers licensed in June are profiled in Table 13 for completeness.

Drivers licensed abroad differ from other new drivers in terms of age and sex; the group contains more older drivers and more males. Table 13 shows that the June group is significantly older. This one-year difference in average age would tend to exaggerate any effect of the program since older drivers tend to have better records and to respond more strongly to the program. Despite this bias, the table indicates that probationary drivers receive significantly more suspensions, but the rates for offences and accidents are not significantly lower.

5/ GENERAL DISCUSSION

This section provides a more general discussion of the results of this program evaluation and of some areas of research for consideration. Section 5.1 examines various explanations for the observed differences. Section 5.2 describes a number of research areas that could be explored in the future and discusses some of the practical problems involved in doing so.

5.1/ Some Possible Explanations for the Association Between Program and Driver Records

The previous section focused on the range and extent of the observed differences in offence and accident rates. This section provides a discussion of some possible explanation for these differences.

When drivers are put on probation, they are, in effect, being told that they have been identified as new drivers and that they will be monitored more closely with respect to their initial years of driving performance. Although the possible reactions to this message are varied and inter-related, there are two relevant issues that are worthy of more detailed discussion. One issue is whether those on probation drive more carefully, drive less, or both. A second issue is whether probationary drivers generally accept the program or have feelings of resentment. These two issues and their implications for long-term program effectiveness are discussed in Sections 5.1.1 and 5.1.2. Section 5.1.3 deals with the possibility that the increased rate of demerit point suspensions among probationary drivers accounts for the observed program effects, i.e., because more bad drivers are removed from the road temporarily.

5.1.1/ Driving More Carefully vs Driving Less

It is not clear from driving records how the program affects behaviour. This issue is important because one possible effect, "driving less", will produce new drivers who face the end of their probationary status with relatively little driving experience. If these drivers decide to drive more after probation, or even during the second year of probation, the

positive impact observed in the first year of probation may be significantly weaker in subsequent periods. Careful drivers are more likely to learn good habits that carry over into the post-probationary period.

5.1.2/ Acceptance of the Program vs Resentment

The reaction of probationary drivers to the program should also be considered. Some probationary drivers may achieve good driving records, in part, because they agree that as a new driver they do face special difficulties. Other drivers, even though they achieve good records in the first year on probation, may still feel that the program is "unfair". This issue may also have consequences for long-term program effects; resentment may lead to a deterioration in driving records near the end of the second year of probation or especially after probation has ended. Program acceptance seems more likely to produce long-term positive effects.

5.1.3/ Removing More Drivers from the Road

Part of the observed differences may result from the fact that a greater number of probationary drivers receive one-month demerit point suspensions. Existing data allow for an assessment of the likely magnitude of this effect. This is done by estimating the number of offences and accidents that would have occurred if June drivers had been suspended at the same rate as May drivers. This assessment indicates that taking new drivers off the road for a month, by itself, does not account for a major portion of the observed program effects (see Appendix E for details). This assessment does not deal with the possible effects of suspensions on subsequent driving behaviour, nor the impact of the threat of suspension.

5.2/ Areas of Future Study for Consideration

There are four major areas which may be considered for further research discussed in the following subsections:

- Comparability of May and June drivers (Section 5.2.1),
- Continued Monitoring of Driver Records (Section 5.2.2),

- Assessing Explanations for Driving Record Differences Associated with the Program (Section 5.2.3), and
- Research to Support Program Improvement Efforts (Section 5.2.4).

In addition, the uses and limitations of self-report information are discussed in Section 5.2.5

5.2.1/ Comparability of May and June Drivers

One concern in this study is the comparability of May and June drivers. The main reason for this concern is that new drivers were not randomly assigned to the probationary group. It is possible that, for some unknown reason, drivers licensed in May tend to have worse driving records than drivers licensed in June. If this is the case, it is not clear whether the program effects can be attributed, in part, to such unknown factors or group characteristics.

One method for assessing the existence of such an undefined difference is to extract the driving records of comparable drivers licensed in May and June of previous years and examine the pattern of differences. If the difference between May and June, 1981, groups is significantly greater than that of other May vs June groups, this would increase, somewhat, the assurance that the May vs June, 1981, difference reflects the impact of the program. It should be noted that the results of such an analysis would be inconclusive if there are variations from year to year, and efforts to explain these variations would probably not be fruitful. Since a considerable amount of data and effort would be required, this analysis should only be undertaken if there is a serious concern that, for some unknown reason, May and June drivers are not comparable.

If there are specific concerns about the comparability of May vs June, 1981, drivers, characteristics of interest could be assessed through a survey. This survey would have to be limited to factors that are not likely to have been affected by the program, e.g., employment, car ownership, driver training. Although such differences could be

discovered, it would be difficult to determine the extent to which such differences contributed to the observed differences in driving records between May and June drivers.

5.2.2/ Continued Monitoring of Driver Records

It is suggested in Section 5.1 that the long-term impact of the program may depend on how people react to being on probation. Given the range of possible reactions, differences observed in the first year of the program should not be taken as a strong indication that similar differences will be observed in the second year or especially in the year after probation has ended. Continued monitoring of driver records will provide information that is essential for an assessment of the extent and duration of differences associated with the program. Decisions about the timing of such research will have to consider the trade-offs between the costs and benefits of this information and the timeliness of the results.

5.2.3/ Assessing Explanations for Driving Record Differences Associated with the Program

One way to improve our understanding of differences associated with the program is to study the driving related behaviours, attitudes, opinions and knowledge of pre-probation and probationary drivers. Specific information of interest would include the amount and type of driving, awareness and understanding of the program, attitudes and opinions related to driving in general and, in particular, to new drivers and the probationary program. If a better understanding of the program can be achieved, this would also support possible future improvement efforts (see next section).

It would be a major undertaking to collect this kind of information. Since the program may affect different types of drivers in different ways, it would be necessary to collect information on a wide range of variables and to sample enough drivers to be able to draw conclusions about specific subgroups.

5.2.4/ Research to Support Program Improvement Efforts

It is possible that effectiveness of the current program could be improved by modifying various aspects of the program. However, it is difficult to use driving record information to identify what changes might be effective. Such an identification process would probably require the collection of self-report information from probationary drivers regarding their reaction to the program. This process would be most effective if it was based on an assessment of the full, long-term impact of the program. For example, low exposure may be associated with good driving records in the first probationary year, but a pattern of low exposure under probation followed by high exposure after probation could be associated with a poor long-term driving record. If this pattern is common, it may be appropriate to discourage probationary drivers from "putting their licence in a drawer".

If promising improvements can be identified, they could be assessed by randomly assigning probationary drivers to the existing program or to a modified program. This method would be constrained by social and legal considerations.

5.2.5/ Uses and Limitations of Self-Report Information

Sections 5.2.3 and 5.2.4 refer to additional information that could be collected as part of the program evaluation process. One major technique that could be used is to elicit self-reports from drivers. This information could be used to interpret and corroborate the results of the record study and (as indicated in Section 5.2.4) suggest possible program improvements. It should be noted, however, that it would be difficult to assess the relative contribution of different factors to the observed differences. For example, there could be very strong evidence that probationary drivers drive less, but only weak evidence that they drive more carefully. It would not be appropriate to conclude from this pattern of results that "driving less" is more responsible for the observed differences than is "driving more carefully." It could be that the respondents have a fairly clear idea of how much they drive but cannot (or will not) give an accurate indication of how carefully they

drive. If the program appears to affect a combination of behaviours, attitudes, and opinions, it will be difficult to determine how these effects are interrelated.

Self-reports could also increase confidence that the program is having a positive impact on driving. For example, probationary drivers may be more likely to describe themselves as safe drivers or to agree with "positive" opinions or attitudes about safe driving. This kind of information could also support indications that the size of the differences associated with the program depends on the age and/or sex of the driver.

It should be emphasized that self-reports of drivers are limited by the reliability and honesty of the respondents, and they assume that the respondents understand questions as they were intended.

6/ SUMMARY OF FINDINGS

The results of the evaluation indicate that, in the first year, probationary drivers have better records in terms of overall accidents and overall offences. This difference is also observed in separate examinations of injury-related accidents, property damage only accidents, pointable offences, and minor speeding offences. The results for young males (under 20) are of special interest because of their relatively high accident and offence rates. There is some evidence of better records under probation for this group but the differences are not as strong as for the overall comparison.

Although the overall record of probationary drivers is better, there is little evidence of differences in accident or offence rates for young females, drivers with motorcycle licences, or drivers previously licensed abroad.

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TABLE 1/ DESCRIPTION OF TWO ALTERNATIVE SAMPLES

	FOUR-MONTH COHORT		ONE-MONTH COHORT	
	PRE	POST	PRE	POST
(MONTH LICENSED)	(FEB-MAY)	(JUNE-SEPT)	(MAY)	(JUNE)
NUMBER OF DRIVERS	53544	75824	17239	22583
	19.8	20.4	19.9	19.9
SEX (MALE)	52.1%	46.4%	49.8%	47.9%
CLASS (G)	97.9%	97.6%	96.8%	97.4%
(M)	0.9%	1.4%	1.7%	1.4%
(GM)	1.2%	0.9%	1.5%	1.2%
OFFENCES/ 10 000 DRIVERS	3391	2637	3131	2700
ACCIDENTS/ 10 000 DRIVERS	1230	985	1093	992

TABLE 2/ AGE DISTRIBUTION OF THE COMPARISON GROUPS

	PRE (MAY)		POST (JUNE)	
AGE	NUMBER	%	NUMBER	%
16	6901	40.0	9079	40.2
17	3028	17.6	4033	17.9
18	1534	8.9	2058	9.1
19	921	5.3	1228	5.4
20-24	2349	13.6	2906	12.9
25-29	1026	6.0	1332	5.9
30 AND OVER	1480	8.6	1947	8.6
TOTAL	17239	100.0	22583	100.0
AVERAGE AGE	19.91		19.86	

TABLE 3/ SUSPENSION RECORD FOR THE FIRST YEAR AFTER LICENSING

SUSPENSION	PRE (MAY) (per 10 000 drivers)		POST (JUNE) (per 10 000 drivers)
TOTAL SUSPENSIONS	158	*	317
- DEMERIT PT. SUSPENSIONS	2	*	192
- CCC SUSPENSIONS	70		62
- MVAC/FINE SUSPENSIONS	78	*	55
- OTHER SUSPENSIONS (e.g., court ordered H.T.A., discretionary)	8		5
NUMBER OF DRIVERS	17 239		22 583

*Significant at .05 level (two-tailed test)

NOTE:

AVERAGE DAYS SUSPENDED FOR ALL DRIVERS IN GROUP	1.22	1.87
DAYS SUSPENDED PER SUSPENSION	77.17	59.03
NUMBER OF DRIVERS WITHOUT SUSPENSION	16979	21917
(% of the total)	(98.5%)	(97.1%)

TABLE 4A/ OFFENCE RECORD FOR THE FIRST YEAR AFTER LICENSING

OFFENCE	PRE (MAY) (per 10 000 drivers)		POST JUNE (per 10 000 drivers)
TOTAL OFFENCES	3131	*	2700
POINTABLE OFFENCES	1773	*	1518
- 7 pt offences	10		7
- 6 pt offences	161	*	136
- 4 pt offences	298	*	244
- 3 pt offences	1066	*	906
- 2 pt offences	238		225
MINOR SPEEDING OFFENCES	647	*	547
ADMINISTRATIVE OFFENCES	200		170
VEHICLE/EQUIPMENT OFFENCES	411		374
C.C.C. OFFENCES	86		76

*Significant at .05 level (two-tailed test)

NOTE:

1/ NUMBER OF DRIVERS	17 239	22 583
NUMBER OF DRIVERS WITHOUT OFFENCES	13 653	18 329
(% of the total)	(79.2%)	(81.2%)

2/ Subtotals may not add to grand total because of rounding errors.

TABLE 48/

DETAILED POINTABLE OFFENCE RECORD FOR THE FIRST YEAR AFTER LICENSING

DETAILED POINTABLE OFFENCE	PRE (MAY) (per 10 000 drivers)		POST (JUNE) (per 10 000 drivers)
7 PTS - FAILING TO REMAIN	10		7
6 PTS - CARELESS DRIVING	133	*	108
- RACING	1		1
- SPEEDING OVER 50 km/h	22		22
- FAILING TO STOP FOR SCHOOL BUS	6		5
4 PTS - SPEEDING BETWEEN 30 & 49 km/h	234	*	183
- FOLLOWING TOO CLOSELY	64		60
3 PTS - SPEEDING BETWEEN 16 & 29 km/h	524	*	433
- RAILWAY CROSSING	0		0
FAILING TO YIELD RIGHT OF WAY	56		46
- FAILING TO OBEY STOP SIGN/ TRAFFIC SIGNAL	393	*	351
- FAILING TO OBEY POLICE	1		2
- DRIVING ON A CLOSED HIGHWAY	1		0
- FAILING TO REPORT AN ACCIDENT	20		19
- IMPROPER PASSING	16		15
- IMPROPER DRIVING (HIGHWAY LANES)	30		19
- CROWDING DRIVER'S SEAT	5		1
- WRONG WAY ON A ONE-WAY STREET	17		18
2 PTS - PEDESTRIAN CROSSOVER	16		14
- FAILING TO SHARE ROAD	19		13
- IMPROPER RIGHT TURN	6		8
- IMPROPER LEFT TURN	12		15
- FAILING TO SIGNAL	59		54
- UNNECESSARY SLOW DRIVING	0		1

TABLE 4B/ (Continued)

DETAILED POINTABLE OFFENCE	PRE (MAY) (per 10 000 drivers)	POST (JUNE) (per 10 000 drivers)
2 PTS - FAILING TO LOWER HEADLIGHT BEAM	1	6
- IMPROPER OPENING OF DOOR	1	0
- PROHIBITED TURNS	117	108
- FAILING TO OBEY SIGNS (SECTION 128 (1))	8	11
- BACKING ON HIGHWAY	0	0

* Significant at .05 level (two-tailed test). Because of the large number of comparisons, significance level should be interpreted with caution.

NOTE:
Subtotals may not add to grand totals because of rounding errors.

TABLE 5/ DEMERIT POINT RECORD FOR THE FIRST YEAR AFTER LICENSING

TOTAL DEMERIT POINTS RECEIVED	PRE (MAY)		POST (JUNE)	
	NUMBER OF DRIVERS	%	NUMBER OF DRIVERS	%
0	14830	86.0	19732	87.4
2-5	1811	10.5	2262	10.0
6-8	454	2.6	476	2.1
9-14	132	0.8	104	0.5
15 OR MORE	12	0.1	9	0.0
TOTAL DRIVERS	17239	100.0	22583	100.0
AVERAGE DEMERIT PER DRIVER	.5780	*	.4918	

* Significant at .05 level (two-tailed test)

NOTE:

NUMBER OF DRIVERS WITHOUT DEMERIT POINTS	14830	19732
(% of the total)	(86.0%)	(87.4%)

TABLE 6/ ACCIDENT RECORD FOR THE FIRST YEAR AFTER LICENSING

CLASS OF ACCIDENT	PRE (MAY) (per 10 000 drivers)		POST (JUNE) (per 10 000 drivers)
FATAL	2		2
NON-FATAL	358	*	310
PROPERTY DAMAGE	691	*	634
NON-REPORTABLE	42		46
ALL ACCIDENTS	1093	*	992
"PROPER" ACCIDENTS	325		294
"IMPROPER" ACCIDENTS	720	*	660
NUMBER OF DRIVERS IN EACH GROUP	17239		22583

* Significant at .05 level (two-tailed test)

NOTE:

NUMBER OF DRIVERS WITHOUT ACCIDENTS	15494	20500
(% of total)	(89.9%)	(90.8%)

TABLE 7/ SAMPLE SIZE BY AGE AND SEX CATEGORIES FOR THE FIRST YEAR AFTER LICENSING

AGE/SEX	CATEGORIES	PRE (MAY)	POST (JUNE)
YOUNG MALE	(16-19)	7125	9082
YOUNG FEMALE	(16-19)	5259	7316
OLDER MALE	(20 OR OVER)	1454	1745
OLDER FEMALE	(20 OR OVER)	3401	4440
ALL DRIVERS		17239	22583

TABLE 8/ SUSPENSION RECORD BY AGE AND SEX CATEGORIES FOR THE FIRST YEAR AFTER LICENSING

AGE/SEX	CATEGORIES	PRE (MAY) (per 10 000 drivers)		POST (JUNE) (per 10 000 drivers)
YOUNG MALE	(16-19)	254	*	570
YOUNG FEMALE	(16-19)	25	*	79
OLDER MALE	(20 OR OVER)	440	*	619
OLDER FEMALE	(20 OR OVER)	41		70
ALL DRIVERS		158	*	317

* Significant at .05 level (two-tailed test)

TABLE 9A/ OFFENCE RECORD BY AGE AND SEX CATEGORIES FOR THE FIRST YEAR AFTER LICENSING

AGE/SEX	CATEGORIES	PRE (MAY) (per 10 000 drivers)		POST (JUNE) (per 10 000 drivers)
YOUNG MALE	(16-19)	5126	*	4575
YOUNG FEMALE	(16-19)	1213		1110
OLDER MALE	(20 OR OVER)	5131	*	4384
OLDER FEMALE	(20 OR OVER)	1064	*	822
ALL DRIVERS		3131	*	2700

* Significant at .05 level (two-tailed test)

TABLE 9B/ POINTABLE OFFENCES BY AGE AND SEX CATEGORIES FOR THE FIRST YEAR AFTER LICENSING

AGE/ SEX	CATEGORIES	PRE (MAY) (per 10 000 drivers)		POST (JUNE) (per 10 000 drivers)
YOUNG MALE	(16-19)	2905	*	2509
YOUNG FEMALE	(16-19)	675		657
OLDER MALE	(20 OR OVER)	2889		2550
OLDER FEMALE	(20 OR OVER)	615	*	500
ALL DRIVERS		1772	*	1518

* Significant at .05 level (two-tailed test)

TABLE 10/ DEMERIT POINT RECORD BY AGE AND SEX CATEGORIES FOR THE FIRST YEAR AFTER LICENSING

AGE/ SEX	CATEGORIES	PRE (MAY) (per driver)		POST (JUNE) (per driver)
YOUNG MALE	(16-19)	.9648	*	.8304
YOUNG FEMALE	(16-19)	.2128		.2076
OLDER MALE	(20 OR OVER)	.9223	*	.7920
OLDER FEMALE	(20 OR OVER)	.1855	*	.1493
ALL DRIVERS		.5780	*	.4918

* Significant at .05 level (two-tailed test)

TABLE 11/ ACCIDENT RECORD BY AGE AND SEX CATEGORY FOR THE FIRST YEAR AFTER LICENSING

AGE/ SEX		PRE (MAY) (per 10 000 drivers)		POST (JUNE) (per 10 000 drivers)
YOUNG MALE	(16-19)	1531		1426
YOUNG FEMALE	(16-19)	652		670
OLDER MALE	(20 OR OVER)	1554	*	1272
OLDER FEMALE	(20 OR OVER)	654	*	525
ALL DRIVERS		1093	*	1518

* Significant at .05 level (two-tailed test)

TABLE 12/ PROFILE OF "M" CLASS DRIVERS

	PRE (MAY)		POST (JUNE)
NUMBER OF DRIVERS	558		586
AGE	17.53		17.42
SEX (MALE)	94.3%		92.5%
SUSPENSIONS (PER 10 000 DRIVERS)	269	*	870
OFFENCES (PER 10 000 DRIVERS)	6882		6468
• POINTABLE OFFENCES	3961		3601
• CRIMINAL CODE OF CANADA	72		154
• MINOR SPEEDING	968		1143
• ADMINISTRATIVE	789		683
• EQUIPMENT	1004		853
DEMERIT PTS. RECEIVED/DRIVER	1.315		1.167
ACCIDENTS (PER 10 000 DRIVERS)	1577		1502
• NON-FATAL (PER 10 000) DRIVERS	1039		887
• PROPERTY DAMAGE (PER 10 000 DRIVERS)	502		495

* Significant at .05 level (two-tailed test)

TABLE 13/ PROFILE OF "NEW" DRIVERS WITH PREVIOUS EXPERIENCE

	PRE (MAY)		POST (JUNE)	
	LICENSED ABROAD		LICENSED ABROAD	NORTH AMERICA
NUMBER OF DRIVERS	1123		1305	707
AVERAGE AGE	32.68	*	33.67	30.54
SEX (MALE)	66.7%		68.1%	58.3%
SUSPENSIONS (PER 10 000 DRIVERS)	98	*	245	339
OFFENCES (PER 10 000 DRIVERS)	3446		3264	2277
• POINTABLE	2021		1770	1358
• CRIMINAL CODE OF CANADA	53		8	57
• MINOR SPEEDING	1015		1088	552
• ADMINISTRATIVE	116		130	99
• EQUIPMENT	240		261	212
DEMERIT PTS. RECEIVED/DRIVER	0.606		0.540	0.419
ACCIDENTS (PER 10 000 DRIVERS)	632		628	948
• NON-FATAL (PER 10 000 DRIVERS)	169		222	339
• PROPERTY DAMAGE (PER 10 000 DRIVERS)	445		398	552

* Significant at .05 level (two-tailed test)

APPENDIX A/

THE PROBATIONARY DRIVER SYSTEM

1/ DEMERIT POINT SYSTEM -- ACTION LEVELS

- ALL DRIVERS ACCUMULATE DEMERIT POINTS WHEN CONVICTED OF A POINTABLE OFFENCE

- THE EFFECTIVE DATE OF A DEMERIT POINT ACCUMULATION IS ON THE OFFENCE DATE, NOT ON THE CONVICTION DATE OR ON THE DATE AN APPEAL IS OVER-RULED

PROBATIONARY

- 0 TO 5 POINTS: ADVISORY LETTER SENT

- 6 POINTS OR MORE: MANDATORY 30-DAY SUSPENSION FOR FIRST AND SUBSEQUENT ACCUMULATIONS

NON-PROBATIONARY

- 0 TO 5 POINTS: NO ACTION TAKEN

- 6 TO 8 POINTS: ADVISORY LETTER SENT

- 9 TO 14 POINTS: INTERVIEW; POSSIBLE SUSPENSION FOR 21 DAYS OR MORE

- 15 POINTS OR MORE: MANDATORY 30-DAY SUSPENSION FOR FIRST ACCUMULATION, AND 6-MONTH SUSPENSION FOR SUBSEQUENT ACCUMULATIONS WITHIN 2 YEARS.

2. REINSTATEMENT AFTER SUSPENSION:

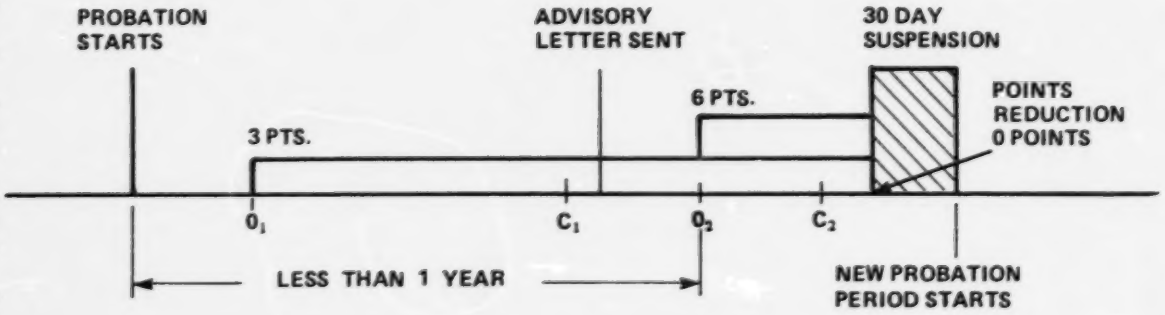
PROBATIONARY

- POINTS TOTAL REDUCED TO ZERO ON DATE OF MANDATORY DEMERIT-POINT SUSPENSION.
- POINTS RETAINED AFTER ANY OTHER TYPE OF SUSPENSION.
- NEW PROBATIONARY PERIOD STARTS ON DAY AFTER SUSPENSION EXPIRES (EXCEPT FOR MEDICAL AND FINANCIAL SUSPENSION).

NON-PROBATIONARY

- POINTS TOTAL REDUCED TO 7 POINTS ON DATE OF MANDATORY DEMERIT-POINT SUSPENSION.
- POINTS RETAINED AFTER ANY OTHER TYPE OF SUSPENSION.

DIAGRAM OF PROBATIONARY DEMERIT-POINT SUSPENSION



O = Offence Date

C = Conviction Date

3/ PROBATIONARY STATUS, PERIOD AND CREDITS:

- TO BECOME A NON-PROBATIONARY DRIVER, A PROBATIONARY DRIVER MUST EARN 2 PROBATIONARY CREDITS.

- TO BE ENTITILED TO A PROBATIONARY CREDIT, THE PROBATIONARY DRIVER MUST MEET 2 CONDITIONS:

  (I) HOLD A VALID ONTARIO DRIVER'S LICENCE, NOT INCLUDING CLASS "L" OR "R", FOR 12 MONTHS, AND,

  (II) NOT COMMIT ANY OFFENCE DURING THE PROBATION PERIOD, THE CONVICITON FOR WHICH RESULTS IN A SUSPENSION.

- HOLDERS OF LICENCE CLASSES "L" AND "R" ARE NOT ENTITLED TO PROBATIONARY CREDITS.

NOTE:

- A PROBATION PERIOD MAY BE RESTARTED OR EXTENDED

- A PROBATIONARY CREDIT MAY BE REVOKED

- PROBATIONARY STATUS MAY BE REVIVED.

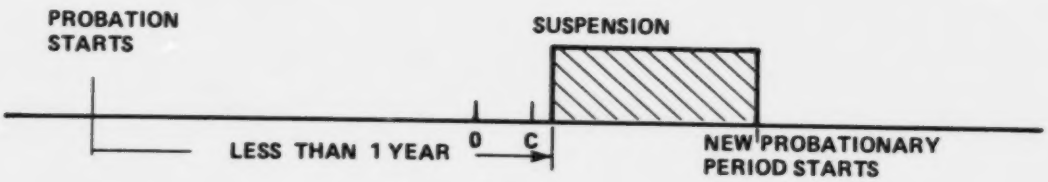
4. PROBATIONARY PERIOD -- RESTARTED OR EXTENDED:

- A PROBATIONARY DRIVER IS NOT ENTITLED TO A PROBATIONARY CREDIT IF THE DRIVER'S LICENCE BECOMES INVALID DURING THE 12 MONTH PROBATIONARY PERIOD.

- A DRIVER'S LICENCE BECOMES INVALID IF SUSPENDED, CANCELLED, OR EXPIRED.

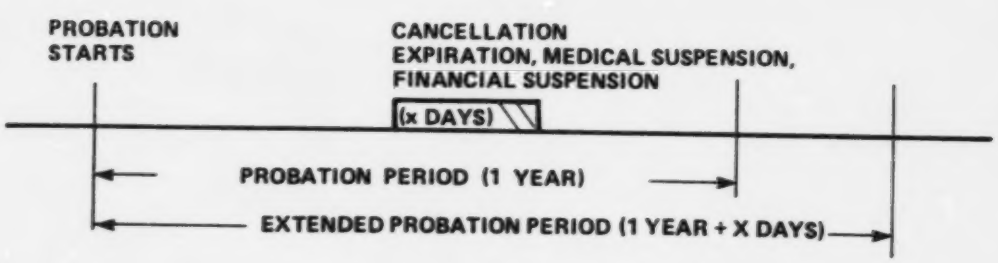
RESTARTED

A PROBATIONARY DRIVER WHO IS SUSPENDED DURING A PROBATIONARY PERIOD RESTARTS A NEW PROBATIONARY PERIOD WHEN THE SUSPENSION EXPIRES.



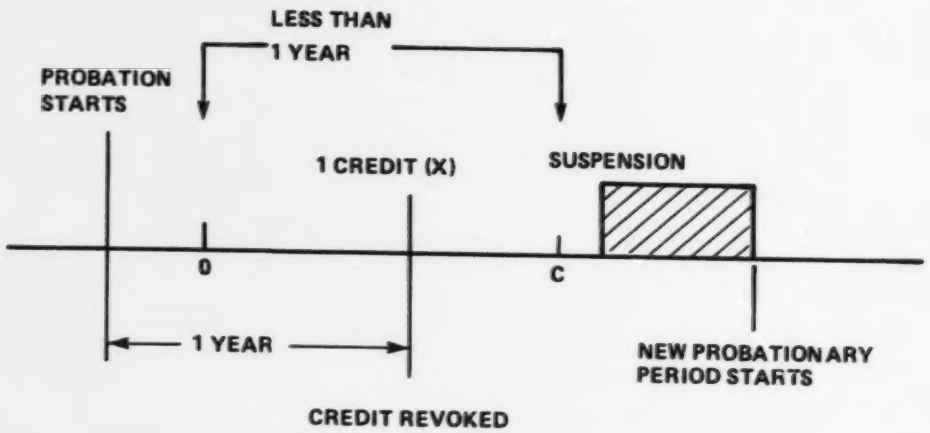
EXTENDED

CANCELLATION, EXPIRATION, OR SUSPENSION FOR MEDICAL OR FINANCIAL REASONS DOES NOT DISENTITLE A CREDIT, BUT EXTENDS THE PROBATIONARY PERIOD BY THE PERIOD OF CANCELLATION, EXPIRATION, OR SUSPENSION.

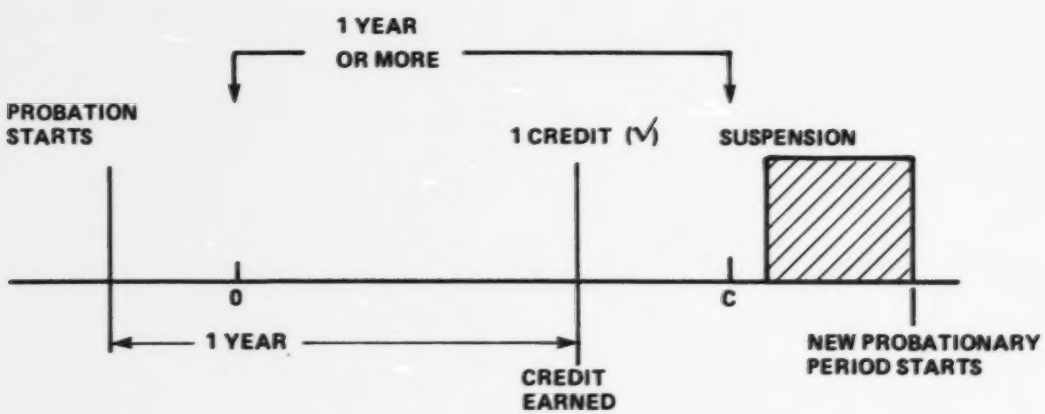


5. PROBATIONARY CREDITS -- REVOKED:

A CREDIT IS REVOKED IF AN OFFENCE, COMMITTED DURING THE PROBATIONARY PERIOD, RESULTS IN A SUSPENSION,



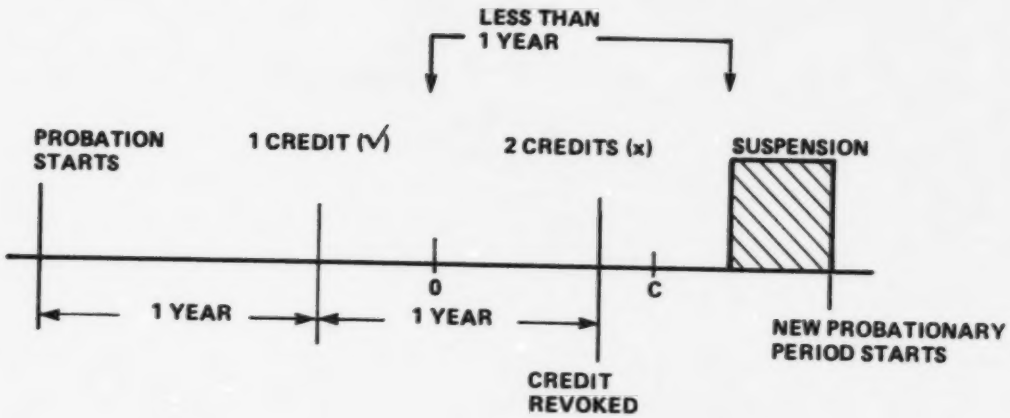
UNLESS THE PERIOD BETWEEN THE OFFENCE DATE AND THE SUSPENSION DATE IS 1 YEAR OR MORE, WITHOUT THE CONVICTION OF AN OFFENCE RESULTING IN A SUSPENSION.



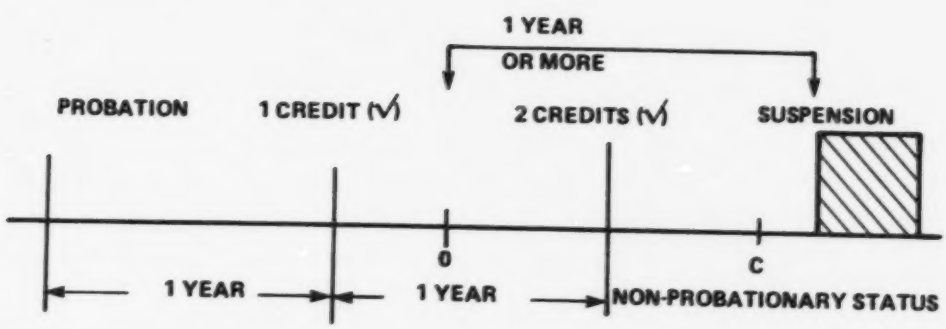
PROBATIONARY DRIVER SYSTEM

6/ PROBATIONARY STATUS -- REVIVED

(I) DRIVERS WHO CEASE TO BE PROBATIONARY, WILL BE RECLASSED AS PROBATIONARY UPON THE CONVICTION OF AN OFFENCE RESULTING IN SUSPENSION, COMMITTED DURING PROBATION,



UNLESS THE PERIOD BETWEEN THE OFFENCE DATE AND THE SUSPENSION DATE IS 1 YEAR OR MORE WITHOUT THE COMMISSION OF AN OFFENCE RESULTING IN SUSPENSION.



7/ OTHER SIGNIFICANT FACTORS

- PROBATIONARY DRIVERS CANNOT HOLD A DRIVING INSTRUCTOR'S LICENCE, OR THE LICENCE CLASSES "B" AND "E" FOR SCHOOL BUSES.

- THE DRIVER'S LICENCE FOR A PROBATIONARY DRIVER IS EXACTLY THE SAME IN APPEARANCE AS THAT FOR A NON-PROBATIONARY DRIVER.

- A DRIVER'S STATUS IS IDENTIFIABLE ONLY FROM THE DRIVER'S RECORD OF THE MINISTRY. (THIS PREVENTS PREJUDGING ON THE BASIS OF PROBATIONARY STATUS BY ENFORCEMENT AGENTS).

- WHEN LICENSED, PROBATIONARY DRIVERS ARE GIVEN A CARD STATING THE DATE THAT PROBATION ENDS. THIS DATE SERVES AS A MEANINGFUL GOAL FOR THE PROBATIONARY DRIVER.

APPENDIX B/ Driver Record Extraction Specification

This component of the evaluation of the probationary licensing program is to conduct a preliminary record study comparing the driving records of probationary and non-probationary newly licensed drivers. Records of new, probationary drivers licensed during the first four months of the program (June, July, August, and September 1981) and new, non probationary drivers licensed during the four month period preceding program implementation (February, March, April, and May 1981) are to be examined for a one year period from the date of the licence (see Figure 1).

All new drivers with the exception of those who were unlicensed and had convictions, are to be included in the study. A rectangular computer tape file of a fixed record length, in character mode, containing specific information on driver demographics, accidents, offences, and suspensions is needed. The created file should be compatible with SPSS system. It is estimated that the file will contain approximately 150 000 records.

The program developed is to be saved and kept in a library for possible use in the later studies of the probationary program.

File Description

0/ Driver Licence Number	15 "characters"
1/ Driver Group - Study Group (1) Probationary (2) Non Probationary - Class of Licence (1) G (2) M (3) GM	
2/ Date of Licence (year, month, day)	-- -- --
3/ Driver Age, as of date of licence	16-99
4/ Driver Sex	1/ Male 2/ Female
5/ Total Number of Accidents	0-99

6/ Total Number of Offences	0-99
7/ Total Number of Suspensions	0-99
8/ Total Number of Days Suspended	0-999
9/ Previous Licence-Experience	
(1) No Previous Licence	
(2) Previous Ontario Licence	
(3) Previous North American Licence	
(4) Licensed Abroad	
10/ Total Number of Fatal Injury Accidents	0-99
11/ Total Number of Non-Fatal Injury Accidents	0-99
12/ Total Number of Property Damage Accidents	0-99
13/ Total Non-Reportable Accidents	0-99
14/ Total Number of 7 Demerit Point Offences	0-99
- failing to remain at scene of accident	
15/ Total Number of 6 Demerit Point Offences	0-99
- number of Careless driving	0-99
- number of Racing	0-99
- number of Exceeding speed limit by 50 km/h or more	0-99
16/ Total Number of 5 Demerit Point Offences	0-99
- Driver of bus to stop at railway crossing	
17/ Total Number of 4 Demerit Point Offences	0-99
- number of Exceeding speed limit by 30 to 49 km/h	0-99
- number of Failing to stop for school bus	0-99
- number of Following too closely	0-99

18/ Total Number of 3 Demerit Point Offences	0-99
- number of Exceeding speed limit by 16 to 29 km/h	0-99
- number of Driving through, around or under railway crossing barrier	
- number of Failing to yield right of way	0-99
- number of Failing to obey a stop sign, signal light or railway crossing signal	0-99
- number of Failing to obey directions of police constable	0-99
- number of Driving or operating a vehicle on a closed highway	0-99
- number of Failing to report an accident	0-99
- number of Improper passing	0-99
- number of Improper driving where highway divided into lanes	0-99
- number of Crowding driver's seat	0-99
- number of Wrong way on a one-way street or highway	0-99
19/ Total Number of 2 Demerit Point Offences	0-99
- number of Pedestrian crossover	0-99
- number of Failing to share road	0-99
- number of Improper right turn	0-99
- number of Improper left turn	0-99
- number of Failing to signal	0-99
- number of Unnecessary slow driving	0-99
- number of Failing to lower headlamp beam	0-99
- number of Improper opening of vehicle door	0-99
- number of Prohibited turns	0-99
- number of Towing of persons on toboggans, bicycles, skis, etc. prohibited	0-99
- number of Failing to obey signs prescribed by regulation under Section 125 (1)	0-99
- number of backing on highway	0-99
20/ Total number of Pointable Offences	0-99

21/ Total Number of HTA Offences	0-99
- number of Administrative Offences	0-99
- number of Vehicle-Equipment Offences	0-99
- number of H.T.A. Moving Offences with the exception of Speeding and C.C.C. Offences	0-99
- number of Speeding Offences (including minor speeding, <16 km/h)	0-99
- number exceeding speed limit (<16 km/h)	0-99
- number of non-moving offences (parking)	0-99
22/ Total Number of C.C.C. Violations	0-99
- number of criminal negligence causing death	0-99
- number of criminal negligence causing bodily harm	0-99
- number of other criminal negligence	0-99
- number of fail to remain	0-99
- number of dangerous driving	0-99
- number of fail to take breathalyzer	0-99
- number of over .08 alcohol	0-99
- number of drive while disqualified	0-99
- number of drive ability impaired	0-99
- number of other C.C.C Violations	0-99
23/ Total Number of Court Ordered Suspension H.T.A. (careless driving, speeding over 30 km/h, racing fail to remain, drive while licence suspended (H.T.A. Section 30 b), Others)	0-99
24/ Total Number of Demerit Point System Suspensions (15 or 6 point accumulation as appropriate for each group studied, fail to attend interview, as a result of interview)	0-99
25/ Total Number of Discretionary Suspensions (H.T.A. Section 27) (medical or physical condition, operating record)	0-99

26/ Total Number of Suspensions For: 0-99
(motor vehicle accident claim, failure to pay judgement, default in payment of traffic fine)

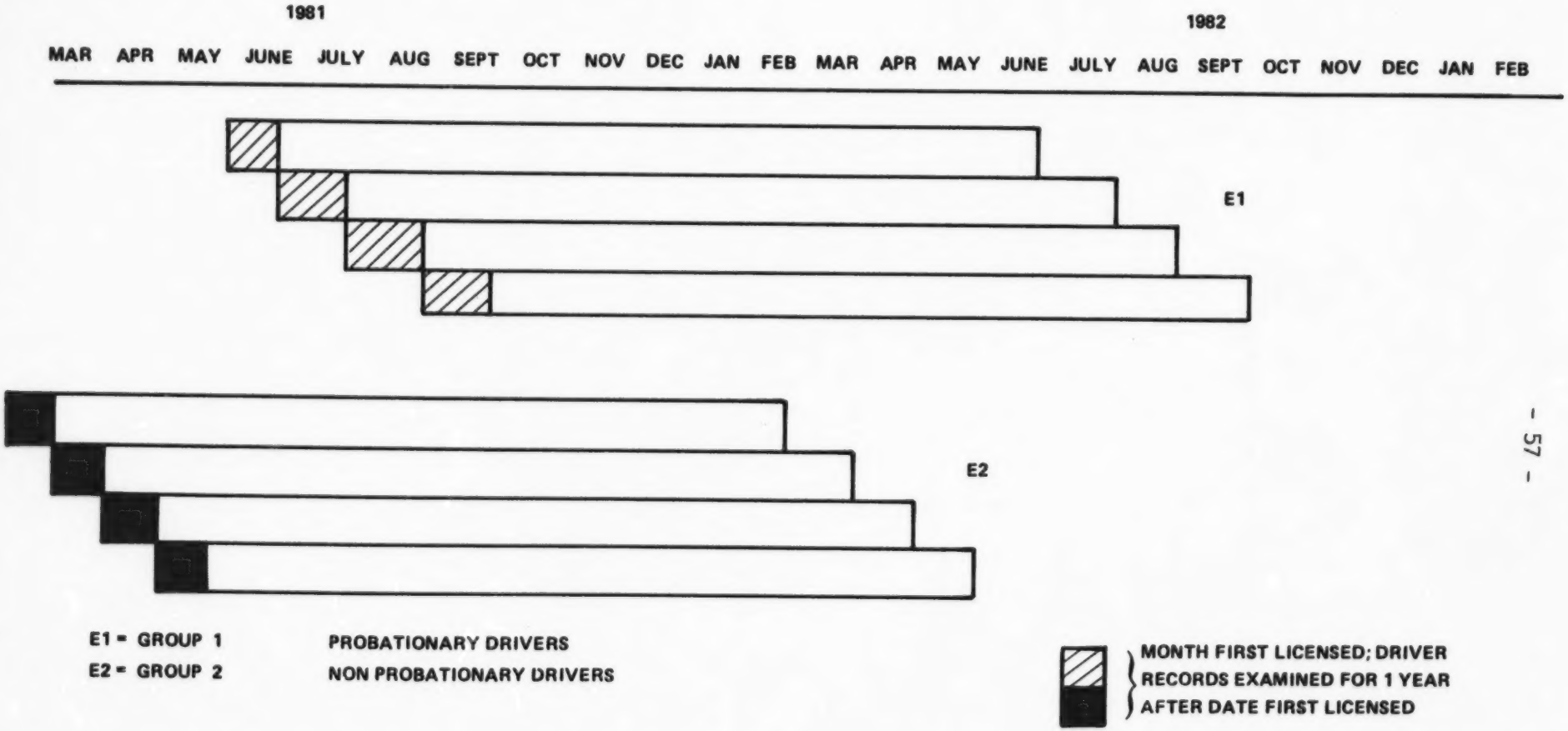
27/ Total Number of Mandatory Suspensions H.T.A. 0-99
(criminal negligence, dangerous driving, impaired, fail to provide breath sample, blood/alcohol .08, fail to remain at scene, drive while disqualified, fail to provide RDS1)

28/ Total Number of Demerit Points Accumulated in One Year 0-99

29/ Apparent Driver Action

- number of Driving Properly 0-99
- number of Following Too Close 0-99
- number of Speed Too Fast 0-99
- number of Improper Turn 0-99
- number of Disobey Traffic Signal 0-99
- number of Fail to Yield Right-of-Way 0-99
- number of Improper Passing 0-99
- number of Lost Control 0-99
- number of Wrong Way on One-Way Road 0-99
- number of Not Known 0-99
- number of Other 0-99

PRELIMINARY RECORD STUDY -- TIME PERIODS TO BE EXAMINED


1981
1982
MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC JAN FEB
E1
E2
E1 = GROUP 1 PROBATIONARY DRIVERS
E2 = GROUP 2 NON PROBATIONARY DRIVERS
MONTH FIRST LICENSED; DRIVER RECORDS EXAMINED FOR 1 YEAR AFTER DATE FIRST LICENSED

Further Clarification of Some Variables

ITEM #1
"Driver Groups" should include - two variables.

Variables:

1A - Study Groups:	1/ Probationary Drivers
	2/ Non Probationary Drivers
1B - Class of Licence:	1/ Class M
	2/ Class G
	3/ Class GM

Variable #1A STUDY GROUPS:

1/ "New Drivers" licensed in the months of June, July, August, September (1981) - PROBATIONARY DRIVERS:

- all drivers who received an "original" licence (all Classes including Class M) in months of June, July, August, September (1981) and were classified as probationary drivers.

  - excludes drivers who were unlicensed in Ontario but were convicted for traffic offences and classified as probationary drivers.

2/ "New Drivers" licensed in the months of February, March, April, May (1981) - NON PROBATIONARY DRIVERS:

- all drivers who received an "original" licence (all Classes including Class M) in the months of February, March, April, May (1981) and, did not have a valid Ontario Licence for the past three years and did not have a previous North American licence.

Variable #1B CLASS OF LICENCE:
The following class designations are to be used:

1/ Class M -- M licence class at the time of the "original", and no other licence during the six month period after the "original" licence date.

2/ Class G -- G licence class at the time of the "original", and any other licence class with the exception of a M licence during the six month period after the "original" licence date.

3/ Glass GM-- G or M licence class at the time of the "original", and subsequent M or G licence during the six month period after the "original" licence date.

Item #9

There should be four possible values:

1/ Drivers who were not previously licensed, anywhere.

2/ Drivers who were previously licensed in Ontario and failed to renew their licence for the past three years* but applied for a licence during the study time periods.

3/ Drivers who were previously licensed abroad (outside North American)

4/ Drivers who were previously licensed in North America** (not including Ontario, i.e., other provinces in Canada or a state of the United States of America).

---

* This refers to the three year period prior to the latest "original" licence date on the driver record.

** Applies to the probationary drivers exclusively.

NOTE: North America includes all provinces and territories in Canada and all states of the United States of America, only.

APPENDIX C/ COMPARABILITY OF MAY vs JUNE DRIVERS

In Section 3.1 it was suggested that the one-month cohorts study design was the best of the three designs considered. The one-month cohorts design minimizes external environmental effects and allows a more immediate assessment of the impact of the program. However, in examining the data, one might question the comparability of May-June data. May-licensed drivers, overall, may have relatively more "bad" drivers (drivers with a tendency to have more offences and accidents) than June licensed drivers irrespective of the positive effects of the program. Two primary reasons for questioning the comparability of May versus June drivers are:

a) the possibility that "bad" drivers attempt to obtain their licence just before program implementation (discussed in Sections 3.1 & 4.1);
b) the possibility that those drivers licensed in June comprise more individuals who have completed a driver education course.

C.1/ Possibility (a)

As indicated in Section 4.1 there is no direct evidence which might suggest that more "bad" drivers were licensed in May than in June. Firstly, the proportion of new drivers licensed in May 1981 was not larger that in previous years. Secondly, there were no more young or male drivers licensed in May than in the period from February through May.

Since it is difficult to collect direct evidence to indicate whether the May or the June group have a higher proportion of fundamentally "bad" drivers, any indirect evidence must be interpreted cautiously by considering additional factors related to the process of becoming a new driver. These factors include awareness of the program, types of drivers intending to avoid the program, and ability to avoid the program.

In terms of awareness, it is possible that most potential new drivers were aware of the impending change and its general implications. There was extensive media coverage for a considerable period preceding program implementation.

It is less clear how many and what types of drivers would try to avoid the program. Certainly, there is no strong reason to believe that those who avoid probationary status, on the whole, are fundamentally "bad" drivers. Since it may be human nature to prefer to drive in a less stringent environment, "good" drivers as well as "bad" drivers might try to avoid the program if at all possible.

Finally, it is important to distinguish between intending to avoid probation and successfully avoiding it. Potential drivers must learn how to drive, schedule an appointment to take a test, and pass the test (which approximately one-third fail). These considerations lower the probability that "bad" drivers might be over-represented in the May group.

C.2/ Possibility (b)

As indicated, another possible difference between drivers licensed in May and June might be the possibility that more drivers in the June group may have graduated from a driver education course, including secondary school courses. However, the substantial insurance premium reductions normally obtained after successfully completing a driver education course apply to all new drivers. This reduces the probability that the June group has significantly more drivers graduating from driver education courses. Furthermore, education courses are offered year round, with different starting and finishing times. Finally, the strength of the relationship between driver education courses and accident rates is difficult to quantify. If a difference were found it would not be possible to assess the extent to which this explains the observed differences between May and June drivers.

The implications of the discussion in this section must be drawn using good judgment and common sense. Optional methods for dealing with further concerns about the comparability of May and June groups are discussed in Section 5.2.

APPENDIX D/

AN ASSESSMENT OF THE EFFECT OF SEX RATIO DIFFERENCES

Since the proportion of males is significantly larger in the May group than in the June group, there may be concern that the poorer driving record of males accounts for a major portion of the observed differences in accident and offense rates. One way to respond to this concern is to estimate what these rates would have been if the proportion of males in the June group (.479) had been the same as the proportion of males in the May group (.498). The calculations below hold constant the accident and offense rates for males and females in the group.

The 10 827 male drivers licensed in June had an accident rate of 1401 per 10 000 drivers; the rate for the 11 756 females was 615. If the proportion of males in June had been .498, there would have been 11 246 males; at the same accident rate they would have been involved in 1576 accidents. Similarly, there would have been 11 337 females involved in 697 accidents. The adjusted total of 2273 accidents for a population of 22 583 June drivers results in an adjusted accident rate of 1007 per 10 000 drivers. The observed rate was 992, but 1007 is still substantially lower than 1093, the rate for the May group.

A similar series of calculations results in an adjusted offence rate of 2770 compared with 2700 before the adjustment. This adjusted rate is also substantially lower than the offence rate for May, which was 3131.

APPENDIX E/

AN ASSESSMENT OF THE DIRECT IMPACT OF INCREASED DEMERIT POINT SUSPENSIONS

A key feature of the probationary licence program is that new drivers are suspended after accumulating six or more demerit points as opposed to 15 demerit points under the former system. It was expected, therefore, that the probationary licence program would produce a higher rate of demerit point suspensions. There may be a concern that removing this additional group of drivers from the road for 30 days accounts for a major part of the observed difference in accident and offence rates. One way to respond to this concern is to estimate the likely reduction in accidents and offences if June drivers had been suspended at the same rate as May drivers. The calculations below are simplified by assuming that the number of multiple suspensions was trivial (see Section 4.2.2).

In their first year of driving, June drivers received 434 demerit point suspensions; there would have been only five suspensions if they had been suspended at the same rate as the May group. In other words, there were approximately 429 suspension periods imposed because of the new system. The most direct way to estimate the impact of this extra time "off the road" is to examine these drivers' records when they were on the road. Probationary drivers receiving demerit point suspension were involved in 282 accidents and committed 963 offences. If the 429 suspension periods had not been imposed, the accidents and offenses produced by these extra suspended drivers during their first year would presumably have been increased by a factor of one-eleventh (the month off the road would have been like the eleven months on the road). This would have resulted in an adjusted accident rate of 1003 (vs 992) accidents and 2738 offences (vs 2700). These numbers are still substantially lower than the rates for the pre-probationary group (1093 and 3131, respectively).

APPENDIX F/ STATISTICAL TESTS

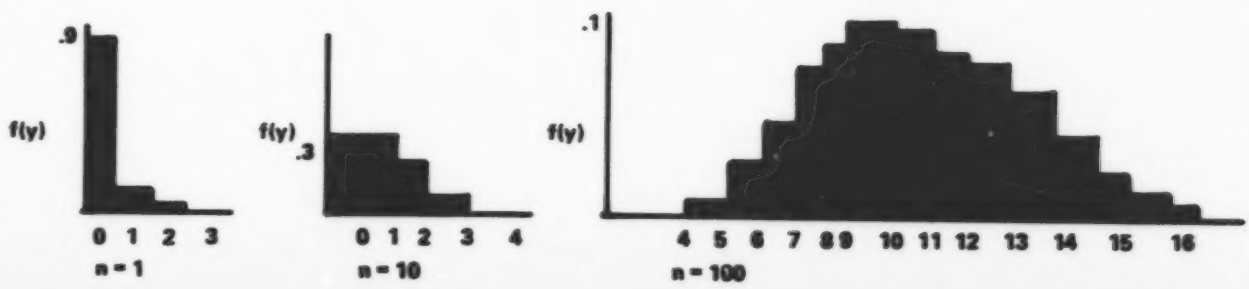
F.1/ General Discussion

In this study, the impact of the program is assessed by comparing the rate of suspensions, convictions and accidents. The emphasis on rates is traditional in highway safety research because important events are the unit of analysis and rates adjust for the number of drivers in each group of interest. For each variable, the statistical difference between groups was calculated by using a two-tailed z-test on the group means.

Although the events of interest are relatively rare occurrances, the large sample size justifies use of the z-test, which assumes that the means being examined are normally distributed. The Central Limit Theorem states that "if n is large, the (theoretical) sampling distribution of the mean can be approximated closely with a normal distribution." [11]. This theorem can be applied to the case of two independent samples as long as both samples are large enough [5, 12].

Sample size is an important issue to address when invoking the Central Limit Theorem. The rapidity of the approach of a limiting distribution to normality depends on the shape of the distribution. Kalbfleisch [13] illustrates how quickly a sampling distribution approaches normality for different underlying distributions, including a Poisson variate. The following examples illustrate the rapid approach to normality for the distribution of the sum of n independent Poisson variates with common

mean = $\lambda = .1$, $Y = \sum_{i=1}^{n} x_i$



These examples are relevant because the distributions of accidents, offences, and suspensions typically follow a skewed distribution similar to a Poisson distribution. In this study, the sample size in each group is 17 000 or more; it seems clear that this sample size is sufficient to invoke the Central Limit Theorem and to apply the z-test accordingly.

This simple but useful technique has been applied in comparable research studies. For example, Peck et al. employed a similar test in their study of the "Effectiveness of Accredited Traffic Violator Schools in Reducing Accidents and Violations" [14]. (Note: The the t-statistics calculated by the SPSS computer program are equivalent to the z-statistics when n is large.)

F.2/ Additional Testing

In addition to the test of difference between means, two other statistical tests were applied to the key variables (accidents, offences, suspensions, demerit points). They included a test of proportions and a Chi-Square test for two independent samples. The results of the tests support the findings derived by the application of the z-test (see Tables F1 to F4).

Consideration was also given to applying a multivariate analysis, in particular Hotelling's T^2, to the data. A multivariate analysis might provide a more sensitive test of difference between groups since optimal weights could be attached to specific criteria of effectiveness, e.g., types of accidents, types of offences.

However, applying a multivariate analysis to the existing data would require considerable effort and resources and should not be carried out unless it can be shown that all the assumptions underlying the analysis are met.

Distributional assumptions include multivariate normality and equal covariance matrices. Another assumption is that the criteria being tested are not highly correlated. This assumption may not be appropriate given the nature of the data in this study [15]. Moreover, the additional value of performing such analysis to this data set is

questionable. Due to these concerns, application of multivariate analysis to the data was not undertaken.

A word of caution is necessary regarding the use of separate t-tests on sub-categories of accidents and offences. Because a certain number of statistical tests might be significant by chance, testing a large number of differences could produce some spurious results. These tests were done to provide some indication of what types of accidents and offences tend to be responsible for the overall differences.

Table F1/ Accident Distribution and Testing

	PRE (MAY)		POST (JUNE)	
ACCIDENTS	Number	Percentage	Number	Percentage
0	15 494	89.9	20 500	90.8
1	1 609	9.3	1 942	8.6
2	133	0.8	126	0.6
3 or more	3	0.0	15	0.1
	17 239	100.0	22 583	100.1

Test of difference between proportions (with 0 accidents), z = -3.01
Chi-square test for two independent samples x^2 = 18.8343 degrees of freedom = 3

Table F2/ Offence Distribution and Testing

	PRE (MAY)		POST (JUNE)	
OFFENCES	Number	Percentage	Number	Percentage
0	13 653	79.2	18 329	81.2
1	2 467	14.3	3 049	13.5
2	713	4.1	817	3.6
3	241	1.4	224	1.0
4	94	0.5	115	0.5
5	37	0.2	26	0.1
6 or more	34	0.0	23	0.1
	17 239	100.0	22 583	100.0

Test of difference between proportions (with 0 offences) z = -4.69
Chi-square test for two independent samples x^2 = 42.5332 degrees of freedom = 6

Table F3/ Suspension Distribution and Testing

	PRE (MAY)		POST (JUNE)	
SUSPENSIONS	Number	Percentage	Number	Percentage
0	16 979	98.5	21 917	97.1
1	248	1.4	620	2.7
2 or more	12	0.1	46	0.2
	17 239	100.0	22 583	100.0

Test of difference between proportions (with 0 suspensions), z = 9.68
Chi-square test for two independent samples x^2 = 90.7426 degrees of freedom = 2

Table F4/ Demerit Points Distribution and Testing

	PRE (MAY)		POST (JUNE)	
DEMERIT POINTS	Number	Percentage	Number	Percentage
0	14 830	86.0	19 732	87.4
2-5	1 811	10.5	2 262	10.0
6 or more	598	3.5	589	2.6
	17 239	100.0	22 583	100.0

Test of difference between proportions (with 0 demerit points), $z = -4.07$
Chi-square test for two independent samples $x^2 = 28.6339$ degrees of freedom = 2

APPENDIX G/

ADDITIONAL INFORMATION REGARDING FOUR-MONTH COHORTS

In order to put the four-month cohort information in some kind of context, both one-month and four-month cohort information are summarized in Table G1. The difference in rates between the pre- and post-groups is indicated. Table G1 shows a consistent pattern -- the differences between the pre-and post-groups are larger in the four-month cohorts with respect to offence, demerit point, and accident rates but smaller with respect to the suspension rate. The differences in accident and offence rate are satistically significant ($p < .05$) for drivers overall as well as for all subgroups with one exception -- accident rates of probationary drivers previously licensed abroad are not significantly lower in either the one-month or four-month comparisons.

As suggested in Section 4.1, the greater difference in accidents and offences in the four-month comparison may be due to the more difficult driving conditions encountered in the winter months. Inexperienced drivers licenced in the four months before June 1, 1981, may, as a result, be involved in more accidents and offences. If driving conditions affect the records of this group this would account for the smaller differences in number of suspensions (a higher percentage of pre-probation drivers would be suspended in the four month group). Offence data for the four-month cohort may be further limited by a bias in the accuracy of offence rates (see Section 4.1).

Table G1/ Additional Information Regarding the Four Month Cohorts

	ONE-MONTH COHORTS			FOUR-MONTH COHORTS		
	PRE (MAY)	POST (JUNE)	Diff.	PRE (FEB-MAY)	POST (JUNE-SEPT.)	DIFF.
YOUNG MALE (no.)	7 125	9 082		22 970	28 051	
Accidents per 10 000 drivers	1 531	1 426	105	1 676	1 450	226*
Offences per 10 000 drivers	5 126	4 575	551*	5 360	4 594	766*
Suspensions per 10 000 drivers	254	570	-316	275	555	-280
Demerit Points/Driver	.9648	.8304	.1344	1.0110	.8423	.1687
OLDER MALE (no.)	1 454	1 745		4 924	7 152	
Accidents per 10 000 drivers	1 554	1 272	282*	1 807	1 387	420*
Offences per 10 000 drivers	5 131	4 384	747*	5 522	4 330	1 192*
Suspensions per 10 000 drivers	440	619	-179	483	612	-129
Demerit Points/Driver	.9223	.7920	.1303	.9947	.7799	.2148
YOUNG FEMALE (no.)	5 259	7 316		15 781	23 726	
Accidents per 10 000 drivers	652	670	-18	745	655	90*
Offences per 10 000 drivers	1 213	1 110	103	1 314	1 113	201*
Suspensions per 10 000 drivers	25	79	-54	31	74	-43
Demerit Points/Driver	.2128	.2076	.0052	.2435	.2018	.0417
OLDER FEMALE (no.)	3 401	4 440		9 869	16 895	
Accidents per 10 000 drivers	654	525	129*	679	507	172*
Offences per 10 000 drivers	1 064	822	242	1 065	811	254*
Suspensions per 10 000 drivers	41	70	-29	52	59	-7
Demerit Points/Driver	.1855	.1493	.0362	.1868	.1455	.0413
ALL DRIVERS (no.)	17 239	22 583		53 544	75 824	
Accidents per 10 000 drivers	1 093	992	101*	1 230	985	245*
Offences per 10 000 drivers	3 131	2 700	431*	3 391	2 637	754*
Suspensions per 10 000 drivers	158	317	-159	181	300	-119
Demerit Points/Driver	.5780	.4918	.0862	.6314	4 807	.1507
"M" CLASS DRIVER (no.)	558	586		1 136	1 788	
Accidents per 10 000 drivers	1 577	1 502	75	1 805	1 667	138*
Offences per 10 000 drivers	6 882	6 468	414	7 482	6 437	1 045*
Suspensions per 10 000 drivers	269	870	-601	414	889	-475
Demerit Points/Driver	1.315	1.167	.148	1.437	1.238	.1990
"NEW" DRIVERS WITH PREVIOUS ABROAD EXPERIENCE (no.)	1 123	1 305		4 122	5 358	
Accidents	632	628	4	742	642	100
Offences	3 446	3 264	182	3 702	3 115	587*
Suspensions	98	245	-147	97	207	-110
Demerit Points/Driver	0.606	0.540	0.066	0.656	0.5183	.1377

* Significant at .05 level (Two-Tailed Test)
Significance levels indicated for accidents and offences only